

REMARKS

Claims 1-23 are pending. Claims 11-19 are allowed. Claims 1, 3, and 5-6 are rejected under 35 U.S.C. § 102(c). Claims 7-8 and 20-23 are rejected under 35 U.S.C. § 103(a). Claims 2, 4, and 9-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all limitations of the base claim and any intervening claims. Claims 1 and 20 are amended.

Independent claim 1 is rejected under 35 U.S.C. § 102(e) as being anticipated by Glas (U.S. Pat. No. 6,330,290). Independent claim 1 is amended to recite "A circuit, comprising: a **direct conversion receiver** coupled to receive a radio frequency signal and produce an analog signal; an analog to digital converter coupled to receive the analog signal and produce baseband digital input signals having real and imaginary components; and a digital baseband circuit, comprising: first and second input ports for receiving the digital input signals; and a controller coupled to the first and second input ports for estimating the gain and phase imbalance of the digital input signals." (emphasis added). The direct conversion receiver advantageously converts radio frequency signals to baseband signals without an intervening intermediate frequency. This is also referred to as Zero Intermediate Frequency (ZIF) as described at page 1, lines 15-20. The present invention is a novel solution to gain and phase imbalance resulting from such a direct conversion. By way of contrast, Glas at Figure 1 discloses a conventional radio frequency (RF) front end 30 with mixers 22 and 24 to convert RF signals at 900 MHz to intermediate frequency signals (IF) at 100 KHz. (col. 1, lines 37-42). These IF signals are subsequently converted to baseband signals by mixer 28. (col. 1, lines 49-52). Glas fails to disclose a direct conversion receiver or gain and phase imbalance estimation of a baseband signal. Thus, claim 1 and depending claims 2-10, as amended, are patentable over Glas under 35 U.S.C. § 102(e).

Claims 20-23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Glas in view of Lewis (U.S. Pat. No. 4,489,392). Independent claim 20 is amended to recite "A gain and phase correction circuit, comprising: a first input port for receiving **an inphase (I) baseband signal**; a

second input port for receiving a quadrature (Q) baseband signal." (emphasis added). By way of contrast, the LF mixer 28 of Glas receives RF signals. Glas fails to teach or suggest the limitations of claims 20-23 might be performed on baseband signals as previously explained. Moreover, one of ordinary skill in the art would not think to combine the teaching of Glas, directed to wireless communications, with the teaching of Lewis, directed to a moving-target-indicator (MTI) radar. Examiner fails to indicate any motivation in either reference for such a combination. Thus, claim 20 and depending claims 21-23 are patentable under 35 U.S.C. § 103(a) over Glas in view of Lewis.

In view of the foregoing, applicants respectfully request reconsideration and allowance of claims 1-10 and 20-23. If the Examiner finds any issue that is unresolved, please call applicant's attorney by dialing the telephone number printed below.

Respectfully submitted,



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